

# PATENT SPECIFICATION



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## COMPLETE SPECIFICATION

### Apparatus to Intensify Hearing

I, CARL WILLIAM HANSEL, of 103, Bromham Road, Bedford, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to that type of deaf aid apparatus in which parts of the deaf aid apparatus are carried by a spectacle frame or similar support. A characteristic feature of the invention is its adaptability to provide support for apparatus capable of modifying the shape or position of the pinnae of the ears or to apply pressure or strain to the cartilage of the ears. In addition the invention provides support for elements of deaf aid apparatus enabling such elements to be positioned as desired relatively to the ear.

The apparatus comprises a support or frame which is carried on the bridge of the nose and the back of the ear. The part carried on the ear or encircling it is modified in shape or construction by extensions or projections or appendages which may function in various ways. For example, they may alter the shape and position of the pinnae of the ear, they may apply pressure or strain to the cartilage of the ears, they may support elements of deaf aid apparatus in suitable positions relative to the ear or within it they may carry stiff and flexible extensions or other appendages.

The ear end of the support may be made from metal, plastic or moulded material, and the like depending on its form and function. It could be produced in a variety of ways, for example, it could be made in the same way as a denture plate from an impression taken behind the ear, and if desired, it could be surfaced with suitable material for comfortable wearing. It could also be made from a selected pressing or stamping of sheet metal. The selection could be made from a standardised series of plates, and the slight modification of form to suit any particular wearer could be carried out by hand. Another type could be made by carrying the end curl of a modified form of spectacle frame first

partly round the ear and then into the auditory canal. The end of it could support an element of deaf aid apparatus or it could be suitably shaped to carry other elements for conveying sound to the ear. For example it could be provided with a plug of soft material such as cotton wool to establish contact with the tympanic membrane of the ear or the sides and end curl of the spectacle frames may be hollow and the hollow extension may be carried into the auditory canal. Other forms are possible but each type may require special production.

Since, for deaf people, the threshold of hearing is sharply defined, a slight increase in intensity of sound often makes a great difference to hearing. For this reason, any addition to sound intensity, however slight, should not be ignored as it may raise the intensity of sound above the threshold value.

Some examples of the application of the invention are described and illustrated in the accompanying drawings.

The Figure shows an unjointed spectacle frame 2 with tubular sides 3 provided with sound receiving surfaces 4 which may or may not be lenses, the end curl 1 of the spectacle frame being extended into a supporting element 11 for a deaf aid device 6 which may be a resonator. The Figure also illustrates a modification or attachment to the end curl 1 in the form of a spring 10 carrying a deaf aid device 7 which may be a vibrator which is pressed by the spring on the back of the pinna of the ear so as to modify its shape. The tubular sides 3 of the spectacle frame 2 may enclose or support the electrical connections 13 or 14 between elements of deaf aid apparatus such as a battery 5 which may be a sound amplifier, the spectacle frame being modified if desired to support the deaf aid device. The apparatus 5, 6, 7, 10, 11, 13 14 will seldom be provided together on 100 the same support.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim 105 is:—

[Price 1/-]

1. Apparatus carried on the bridge of the nose and the back of the ear, the portion resting on or encircling the ear being provided with projections or modifications for the purpose of supporting elements of deaf aid apparatus either within, in front of, or in a suitable position relatively to the ear.

2. Apparatus carried on the bridge of the nose and the back of the ear the portion resting on the ear or encircling it being shaped or provided with extensions, projections, or appendages for the purpose of producing pressure or strain on the cartilage of the ear.

3. Apparatus as in claims 1 or 2 manufactured as a moulding, pressing, or diecasting, or other mass production process.

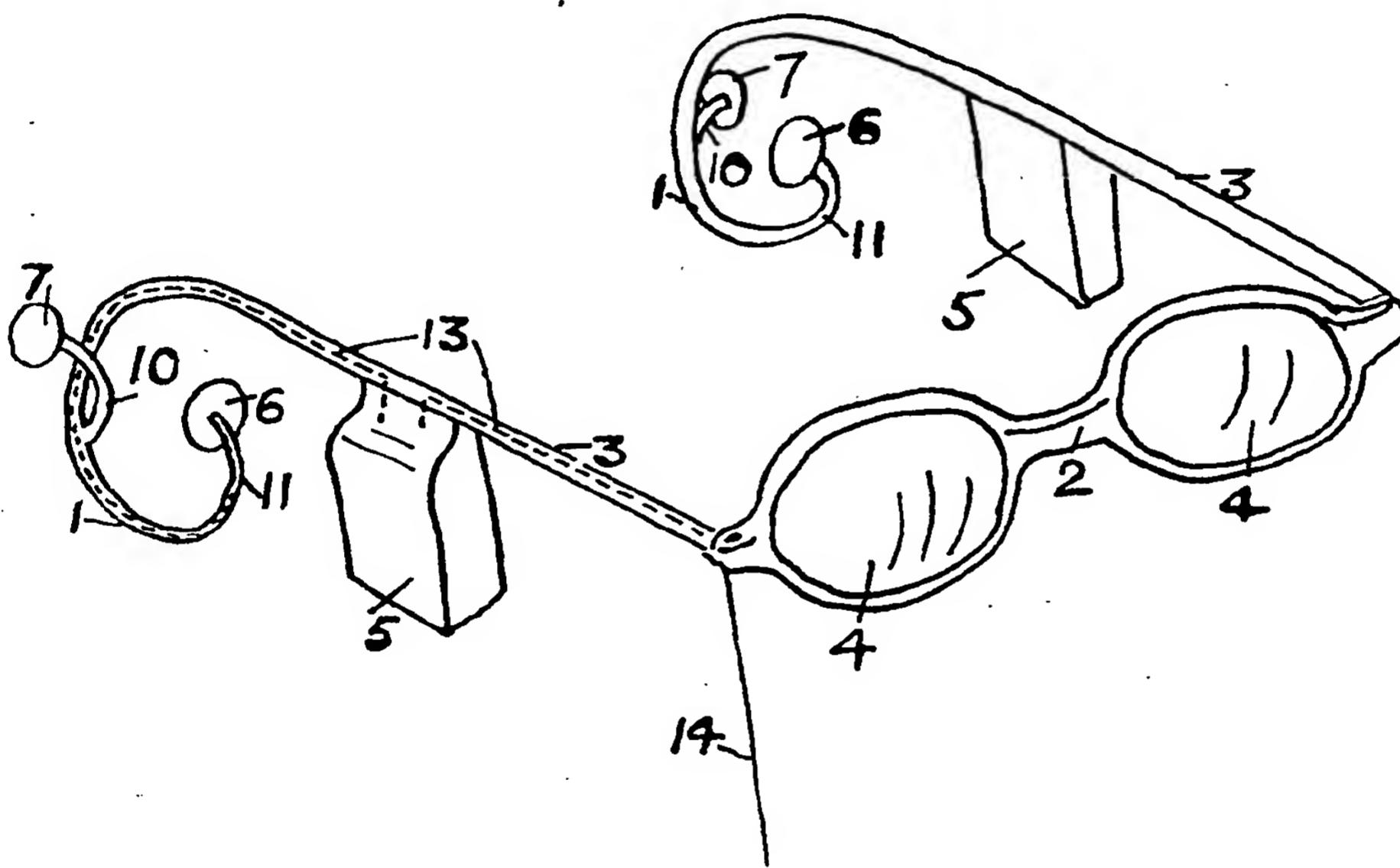
4. Apparatus as in claims 1 and 2 manufactured in a series of standard shapes or sizes.

5. A spectacle frame constructed in accordance with claims 1 to 4.

Dated the Ninth day of January, 1941.  
C. W. HANSEL.

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*[This drawing is a reproduction of the original on a reduced scale.]*



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